

THE LIFE HISTORY OF *IONOLYCE HELICON HYLLUS* (WATERHOUSE & LYELL) (LEPIDOPTERA: LYCAENIDAE)

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Abstract

The immature stages of *Ionolyce helicon hyllus* (Waterhouse & Lyell) are described from eggs collected at Mossman and Cairns in northern Queensland. The larval food plant is *Allophylus cobbe* (Sapindaceae). Eggs are laid singly on flower buds or stems and larvae feed openly on flower buds during the day.

Introduction

Ionolyce helicon hyllus (Waterhouse & Lyell) has a patchy distribution along the eastern coast of Queensland, occurring from Thursday Island in Torres Strait to Mt Etna, 25 km north of Rockhampton (Braby 2000). The early stages have not been recorded previously and this account is of larvae raised from eggs collected at Mossman and Edmonton (near Cairns) in northern Queensland.

Adults were initially collected along the South Mossman River, by John Landy, between 1992 and 2007 but they were found more commonly in early 2007. In December 2007, the present authors went to the South Mossman River site and observed oviposition on *Allophylus cobbe* (L.) Blume (Sapindaceae). All adult specimens collected, except one, were female.

Eggs were collected between late December 2007 and early January 2008, glued singly between two flower buds or, less often, attached to the flower stem. The immature stages were then raised at the home of one of us (RSM) in Cairns.

Life history

Food plant. *Allophylus cobbe* (L.) Blume (Sapindaceae).

Egg (Fig. 3). Diameter 0.40 mm; light yellow; shape similar to that of a mandarin orange and with a sunken micropyle; surface with a pattern of low intersecting ridges and with a small blunt projection arising from each of these intersections.

First instar larva. Length 0.5 mm; head capsule a transparent caramel-brown with prominent black eye-like spots; body elongate, lemon-yellow with numerous brown spots and very long, finely-branched white hairs arranged in dorsal pairs; the two anterior pairs point anteriorly and the remaining ten pairs point posteriorly; a row of shorter hairs occurs laterally, just above the legs.

Second instar larva. Length 1 mm; as for first instar except each segment slightly humped dorsally.

Third instar larva. Length 2 mm; head capsule a transparent caramel-brown with distinct black eye-like spots; lemon-yellow; each segment slightly humped dorsally; less hairy than other instars, with hairs restricted to two dorsal rows and one lateral row just above the legs; body covered with cream coloured, stellate secondary setae; a cream lateral line just above the legs.

Fourth instar larva. Length 3 mm; similar to third instar; head capsule a transparent caramel-brown with distinct black eye-like spots; lemon-lime in colour with cream coloured patches dorsolaterally; cream lateral line just above the legs; hairs very short and restricted to two dorsal rows and one lateral row just above the legs; body still covered with cream coloured stellate secondary setae.

Fifth (final) instar larva (Figs 5-6). Length 7 mm; main colour pale green with cream patches; cream coloured, crescent-shaped markings present dorsolaterally, forming anteriorly facing '3'-shaped markings. As the larva matures, maroon appears around these cream markings. Closer to pupation the larva fades and the centre of the stellate secondary setae now protrudes above the branched top.

Pupa (Figs 7-8). Length 7 mm; caramel-brown in colour; heavily mottled with dark brown spots and with a narrow, dark brown dorsal line on abdomen.

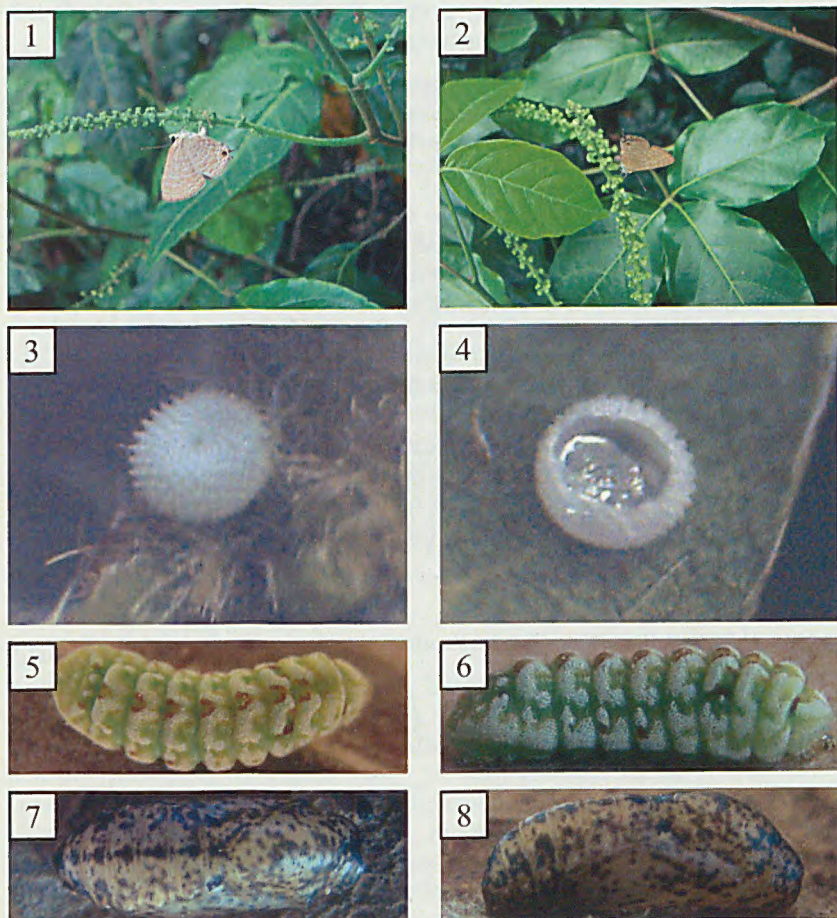
Observations

Allophylus cobbe was the food plant at both the Mossman and Edmonton collection sites. This plant is fairly common at both sites, growing along the outer edge of mangroves. Adult females of *I. helicon hyllus* land on the flower stem and drag their abdomens among the flower buds until the tip of the stem is reached, where they turn around and walk back along the stem, still dragging their abdomens on the buds (Fig. 1). Eggs are deposited on one of the flower buds, which in turn glues another flower bud to the upper side of the egg (Fig. 2). This hides the egg from view and they can only be seen with the help of a hand lens.

On hatching, larvae eat a hole through the top of the eggshells, crawl out and move away, leaving the empty eggshells virtually intact (Fig. 4).

There are five larval instars and all feed openly throughout the day. Later instar larvae chew a hole in the flower buds and insert their heads to consume the contents, while remaining on the top of the bud. When the contents are consumed the larvae move along the stem, progressively consuming the contents of successive buds.

Larvae remained on the food plant throughout their development, leaving only to pupate. Final instar larvae dropped to the bottom of the container if disturbed, then returned to the buds and resumed feeding when the disturbance ceased.



Figs 1-8. *Ionolyce helicon hyllus*. (1) female searching for a suitable oviposition site; (2) female depositing egg; (3) egg; (4) egg after hatching; (5) final instar larva, dorsal view; (6) final instar larva, lateral view; (7) pupa, dorsal view; (8) pupa, lateral view. Photos of larvae and pupae are all head to the right.

Pupation was not observed in the wild, but in captivity final instar larvae moved off the plant and pupated either loosely in the debris in the rearing container or attached to debris by the cremaster only.

The duration of the immature stages was as follows: egg – 3 days; first instar larva – 4 days; second instar larva – 3 days; third instar larva – 3 days; fourth instar larva – 5 days; fifth (final) instar larva – 7 days; pupa – 7 days.

Other food plants that have been observed previously are: Matchbox bean, *Entada phaseoloides* (L.) Merr (Mimosaceae) at Cooktown (P. Samson, pers. comm.) and two unidentified plants on Thursday Island and at Iron Range (S. Johnson, pers. comm.).

Further racemes of *Allophylus cobbe* collected to feed the original larvae were examined under a microscope and, as a result, many eggs and larvae of *Megisba strongyle nigra* (Miskin) were also located and isolated. The life history of that species was documented by Lambkin and Samson (1989).

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References

- BRABY, M.F. 2000. *Butterflies of Australia, their identification, biology and distribution*. 2 vols. CSIRO, Collingwood; xx + 976 pp.
- LAMBKIN, T.A. and SAMSON, P.R. 1989. The life history of *Megisba strongyle nigra* (Miskin) (Lepidoptera: Lycaenidae). *Australian Entomological Magazine* 16(3): 75-77.